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ANALYZER, POWER

1. GENERAL. This procurement requires a power analyzer capable of demand analysis on single and polyphase electrical circuits. The equipment shall monitor voltage, current, frequency, power, power factor, and harmonic distortion.

2. CLASSIFICATION. Type II, Class 3, Style ES, and Color R in accordance with MIL-T-28800 for shipboard applications.

3. OPERATIONAL REQUIREMENTS. The equipment shall provide average and cumulative demand information and provide at least three each true rms voltage and current channels and one neutral-to-ground channel as specified below.

3.1 Voltage channels. Range: 60 to 600 Vrms. Impedance: 2 megohms. Accuracy of measurement: 0.5% of indication. The neutral-to-ground channel shall extend the voltage range to 0 to 600 Vrms.

3.2 Current channels. A clamp-on current probe shall be provided for use with each current channel that allows measurements to 125A and has a frequency response of 45 Hz to 3 kHz nominal. Jaw opening shall not be smaller than 12 mm (0.47 in) in diameter. Accuracy: 0.5% of indication.

3.3 Frequency measurement. Range: 25 to 450 Hz. Accuracy: 0.2% of indication.

3.4 Power indication. The equipment shall be capable of computing and indicating real, apparent, and reactive power from 0 to 75 kW. Power shall be displayed in kW, kVA, and kVAR. Computational processes shall add no additional inaccuracies to measured voltage and current inaccuracies.

3.5 Power factor. The equipment shall be capable of indicating true and displacement power factor. Range: -1 to +1. Accuracy: ± 0.5%. Resolution: 0.1.

3.6 Harmonic distortion. The equipment shall be capable of measuring and displaying individual and total harmonic distortion as a percentage of fundamental for both voltage and current. Individual harmonics shall be discernable up to the 50th for a 60 Hz fundamental and to the 8th for a 400 Hz fundamental.

3.7 Cumulative analysis. The equipment shall provide cumulative demand analysis and display in kWH, kVAH, and kVARH. Analysis intervals shall be selectable; fixed intervals and sliding intervals.

3.8 Chart recorder. The power analyzer shall be equipped with an internal X-Y chart recorder that provides hard-copy records of instantaneous and transient power conditions. The chart recorder shall monitor for at least a 24-hour period. All hard-copy records shall indicate date-time information. Capabilities shall include instantaneous and transient voltage, current, power, power factor, and instantaneous harmonic distortion. The capability to initiate a printout when a preset threshold is exceeded shall be provided.

3.9 Display. A display separate from the chart recorder shall be provided for displaying the instantaneous value of each parameter.

4. GENERAL REQUIREMENTS.

4.1 Power source. MIL-T-28800 nominal and dc internal power source requirements are invoked as detailed below.

4.1.1 Nominal power source. Maximum power consumption: 100W.

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4.1.2 DC internal power source. Internal batteries and charger are required. Minimum operating time shall be 15 minutes upon loss of nominal power. Recharge time shall not exceed 6 hours.

4.2 Weight. 20 kg (44 lb) maximum.

4.3 Lithium batteries. Per MIL-T-28800, lithium batteries are prohibited without prior authorization. A request for approval for the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.

4.4 Safety leads. Current clamps and voltage leads shall be designed to minimize access to hazardous potentials when connected to the equipment under test and shall comply with the safety requirements of MIL-T-28800.